



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Johann-Peter MELDER et al.

Serial No. 09/666,303

Filed: Sept. 21, 2000

For: PROCESS FOR PREPARING POLYALKENE AMINES

DECLARATION

I, Marco Bergemann, Dr. rer. nat., a citizen of the Federal Republic of Germany and residing at D-68766 Hockenheim, Federal Republic of Germany, declare as follows:

I am a fully trained organic chemist, having studied chemistry at the universities of Halle and Heidelberg, Federal Republic of Germany, from 1990 to 1997.

I am well acquainted with technical English.

I joined BASF Aktiengesellschaft of 67056 Ludwigshafen, Federal Republic of Germany in 1998, since when I have been working on developments in fuel additives.

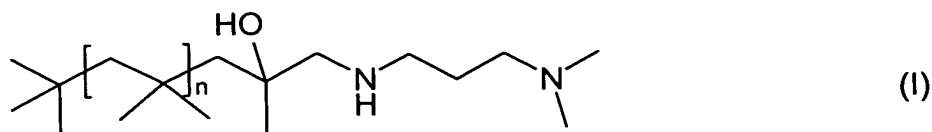
I am familiar with the invention disclosed and claimed in Application Serial No. 09/666,303, and the field, to which the said application relates, and with the Examiner's objections, according to which the invention as claimed lacks inventiveness.

The present invention relates to novel polyalkene amines which are useful as fuel and lubricant additives. Said polyalkene amines are obtained via reductive amination of a polyalkene epoxide.

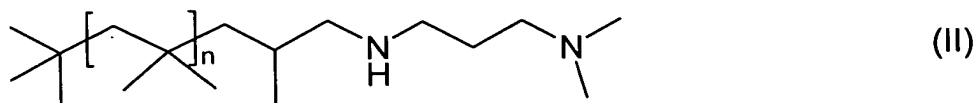
In order to show that compounds of the claimed type are superior to those of US 6,262,310 the following comparative experiment has been carried out:

1. In a first experiment example 6 of US 6,262,310 was repeated. Polyisobutene-epoxide (Mn 1300 corresponding to Ultraviss 30<sup>R</sup>) was aminated with

dimethylaminopropyl amine. A hydroxy amine compound of formula I was obtained.



In a second experiment the same polyisobutene epoxide was reacted under conditions of reductive amination according to the present invention to form a non-hydroxylated amine of formula II



2. As the next step two additive packages have been prepared containing one of said amine reaction products (compounds of formula I or formula II as main constituent) and equal parts of a synthetic carrier oil and a paraffin-based solvent (weight ratio 1:1:1). Euro Super Fuel (RON 95 according to EN228) was additivated with each of said additive packages and the thus obtained two differently additivated fuels were examined in a standardised M111E engine test (according to CEC F-20-A-98). After each run intake valve deposits (IVD) and total combustion deposits (TCD) were examined and compared to the values as obtained for non-additivated fuel.
3. The test results as obtained are summarized in the following table.

Compound	IVD <sup>1)</sup>	TCD <sup>2)</sup>
Base run (no additive)	219	1106
PIB hydroxy amine (US 6,262,310)	22	1229
PIB amine (invention)	19	1167

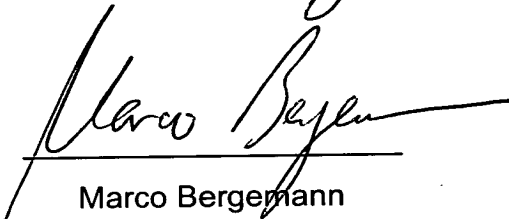
<sup>1)</sup> IVD = Intake Valve Deposits [mg/valve]

<sup>2)</sup> TCD = Total Combustion Deposits [mg/cylinder]

As can be taken from the obtained test results, polyisobutene amine according to the invention does not only cause a reduced value for intake valve deposits, it also reduces the occurrence of combustion chamber deposits. The observed improvements of additive performance for additives of the present invention were not expected by me.

I declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Signed at 67056 Ludwigshafen, Germany, this 24 day of January 2003

  
Marco Bergemann